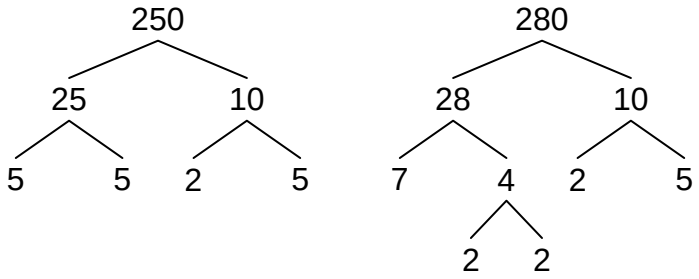
Name: Date:

Prime factorization

Use prime factorization to find greatest common factor (GCF) and least common multiple (LCM)

Example 1: Find GCF and LCM of 250 and 280.

- First make prime-factor trees



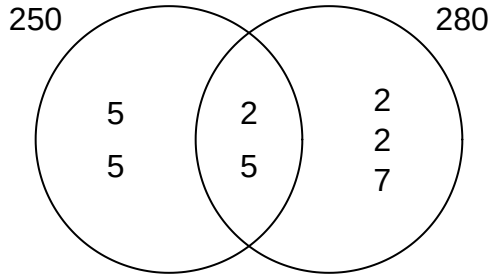
- Write each as number in prime-exponent form.

$$250 = 2^1 \cdot 5^3$$

$$280 = 2^3 \cdot 5^1 \cdot 7^1$$

  Notice, you could also write $250 = 2^1 \cdot 5^3 \cdot 7^0$

- Make a Venn diagram showing the shared factors.



- The greatest common factor of 250 and 280 is the product of the factors in the **intersection**.

$$\text{GCF} \;=\; 2^1 \cdot 5^1 \;=\; 10$$

- The least common multiple of 250 and 280 is the product of the factors in the **union**.

$$\text{GCF} \;=\; 2^3 \cdot 5^3 \cdot 7^1 \;=\; 7000$$

1. Find the GCF and LCM of 20 and 150.

- Factor trees

- Prime-exponential notation

- Venn diagram

- GCF

- LCM

2. Find the GCF and LCM of 72 and 40.

- Factor trees

- Prime-exponential notation

- Venn diagram

- GCF

- LCM

3. Find the GCF and LCM of 30 and 175.

- Factor trees

- Prime-exponential notation

- Venn diagram

- GCF

- LCM

4. Find the GCF and LCM of 50 and 42.

- Factor trees

- Prime-exponential notation

- Venn diagram

- GCF

- LCM

5. Find the GCF and LCM of 55 and 25.

- Factor trees

- Prime-exponential notation

- Venn diagram

- GCF

- LCM